Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of the U.S. Table of	)	RM-____
Frequency Allocations to Designate	)	
the 2500-2520/2670-2690 MHz Frequency	)	
Bands for the Mobile-Satellite Service	)	

PETITION FOR RULEMAKING

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EXECUTIVE SUMMARY

The Satellite Industry Association ("SIA") petitions to amend the U.S. Table of Frequency Allocations (47 C.F.R. § 2.106) to allocate the 2500-2520 MHz (space-to-earth) and 2670-2690 MHz (earth-to-space) frequency bands for the Mobile-Satellite Service ("MSS"). The 1992 World Administrative Radio Conference adopted this allocation internationally; but to date, no action has been initiated to adopt this allocation in the United States.

To facilitate the growing demand for existing MSS-delivered voice and data services and Third Generation ("3G") satellite services, the Commission must provide additional spectrum allocations to accommodate MSS. MSS is growing from providing merely telephone service to remote locations to ensuring availability of Internet access to a large segment of the global population. MSS systems are generally less expensive and more efficient for service to rural, remote and underserved areas than wireline systems. The demand for MSS will thus rise with the increasingly interconnected global economy.

Moreover, like terrestrial operators, satellite operators are planning now for the implementation of MSS systems providing 3G services. 3G services will offer subscribers access to high data rate, broadband services such handheld Internet access and multimedia services such as videoconferencing. The need for spectrum will increase as MSS operators develop 3G service offerings because 3G technologies will require larger frequency channels to meet the higher data rates than those currently used by MSS systems for voice-only service.

The time needed for construction, launch and operation of an MSS system is four to six years. With an effective date of January 1, 2005, for the global allocation, the best time for licensing 2.5 GHz MSS systems in the United States would be in the 2000-2002 time frame. Amending the U.S. Table to adopt an allocation for MSS now would allow the Commission to consider applications within this period and ensure that MSS systems have the opportunity to prepare for launch of service soon after the effective date.

This allocation will serve the public interest because MSS systems offer an almost limitless number of seamless nationwide and global services. Moreover, global MSS systems have footprints that cover the entire United States, and can easily provide service to rural and underserved areas. The Commission should facilitate the development of these services in rural and underserved areas by making sufficient spectrum resources available for MSS.

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PETITION FOR RULEMAKING

Pursuant to Section 1.401 of the Commission's Rules (47 C.F.R. § 1.401), The Satellite Industry Association ("SIA") hereby petitions to amend the U.S. Table of Frequency Allocations (47 C.F.R. § 2.106) to allocate the 2500-2520 MHz and 2670-2690 MHz frequency bands for the Mobile-Satellite Service ("MSS").[1] This allocation will serve the public interest by bringing the United States Table into accord with the International Table of Frequency Allocations and by laying the

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[1] SIA is a national trade association representing the leading U.S. satellite manufacturers, service providers, and launch service companies. SIA serves as an advocate for the U.S. commercial satellite industry on regulatory and policy issues common to its members. With member companies providing a broad range of manufactured products and services, SIA represents the unified voice of the U.S. commercial satellite industry. SIA's members include: American Mobile Satellite Corporation; Boeing Commercial Space Company; COMSAT Corporation; Ellipso Inc.; GE American Communications, Inc.; Globalstar L.P.; Hughes Communications Inc.; Iridium LLC; Lockheed Martin Corp.; Loral Orion Network Services Inc.; Loral Space & Communications Ltd.; Motorola Inc.; Orbital Sciences Corporation; PanAmSat Corporation; Teledesic Corporation; TRW Inc.; and Williams Vyxx Services. Motorola Inc. is not a party to this petition.

groundwork in the United States for implementation of Third Generation ("3G") services and technologies associated with the satellite component of IMT-2000.

BACKGROUND

At the 1992 World Administrative Radio Conference ("WARC-92"), the International Telecommunication Union ("ITU") adopted an allocation for MSS at 2500-2520 MHz (space-to-earth) and 2670-2690 MHz (earth-to-space) ("2.5 GHz MSS").[2] This allocation is not due to come into effect until January 1, 2005, and is subject to the requirements of RR No. S9.11A for coordination with terrestrial systems operating in the band. To date, no action has been initiated to adopt this allocation in the United States.

In preparation for the 2000 World Radiocommunication Conference ("WRC 2000"), the United States has reviewed potential frequencies for implementation of both the satellite and terrestrial components of IMT-2000.[3] The U.S. has recommended that the 2.5 GHz MSS bands be identified for satellite component of IMT-2000, while the entire 2500-2690 MHz band would be identified for the terrestrial component of IMT-2000. These proposals are likely to debated at WRC-2000, and may be specified for further study.

It is critical to the satellite industry in the United States for as much spectrum as possible to be available for the satellite component of IMT-2000.

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[2] See Addendum & Corrigendum to the Final Acts of the World Administrative Radio Conference (Malaga-Torremolinos 1992).

[3] See United States of America, Proposal for Agenda Item 1.6.1 (Feb. 16, 2000).

Estimates of the need for satellite spectrum are already exceeding the amount designated in the International and U.S. Tables. Implementation of the MSS allocation at 2500-2520/2670-2690 MHz would help meet this need and would demonstrate the United States' commitment to the existing and future use of MSS for wireless, global roaming systems.

I. THE COMMISSION SHOULD ADOPT AN ALLOCATION FOR MSS AT 2500-2520 MHZ AND 2670-2690 MHZ.

To facilitate the growing demand for existing MSS-delivered voice and data services and Third Generation broadband services, the Commission must provide additional spectrum allocations to accommodate MSS. Moreover, it is critical to adopt such allocations with sufficient lead time to allow potential operators to design and launch systems (including development of the necessary hardware and software) that can offer service when the spectrum resources are needed.

A. Additional Spectrum for MSS Is Necessary to Meet the Growing Demand for Services.

In preparation for WRC-2000, the United States has recognized that the use of wireless, personal mobile communications services is growing tremendously worldwide. Studies at the ITU and in the United States have indicated that this growth is likely to continue, resulting in a concomitant need for additional spectrum.

In the last decade, MSS has grown from a novel method to provide telephone service in out-of-the-way places to the most likely candidate to ensure availability of Internet access to more of the global population than is currently served by landline

systems. The reasons are simple: it is generally less expensive and more efficient to use satellite systems to serve rural, remote and currently underserved areas than to install a wireline system, and the increasingly interconnected global economy will demand extension of voice and data services to these same rural, remote and underserved areas.[4]

Three years ago, the Commission noted that the ITU Radiocommunication Sector had identified a need for 206 MHz of additional spectrum for MSS by 2005.[5] Currently, there is only 2 x 100.5 MHz of spectrum allocated globally to MSS between 1 and 3 GHz, including the 2.5 MHz spectrum.[6] The vast majority of this spectrum is, or is about to be, in use.

Internationally, Inmarsat has used the L-band (1525-1559/1626.5-1660.5 MHz) spectrum for the past 10 years to provide MSS primarily to maritime subscribers. Inmarsat's subscribers have grown from about 1000 in 1990 to about 175,000 in 1999;[7] and its services have expanded as well to include voice, data,

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[4] See, e.g., Ira Brodsky and Sam Farrar, "Satellites in Cyberspace," www.internettelephony.com (Nov. 15, 1999).

[5] Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, 12 FCC Rcd 7388, 7394-95 (1997) ("2 GHz MSS Order").

[6] This figure combines Land Mobile, Aeronautical Mobile, and Maritime Mobile Satellite spectrum.

[7] See Brodsky and Farrar, supra, at 1, 3.

compressed video, videoconferencing and telemedicine.[8] In the United States, the Commission has licensed AMSC Subsidiary Corporation in the upper L-band (1544-1559/1645.5-1660.5)[9] and is considering grant of AMSC's application to use the lower L-band (1525-1544/1626.5-1645.5 MHz) on the theory that AMSC does not have access to sufficient spectrum.[10] AMSC offers a wide range of mobile communications services, including telephone, point-to-multipoint dispatch, data communications, mobile messaging and position reporting services.

The Commission has also licensed four MSS systems at 1.6/2.4 GHz (1610-1626.5/2483.5-2500 MHz).[11] Of these, both Iridium and Globalstar constructed and launched operational systems, and joined AMSC in providing MSS-delivered voice service to subscribers in the United States.[12] Globalstar has just commenced

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[8] See www.inmarsat.com.

[9] See Amendment of Parts 2, 22 and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service, 4 FCC Rcd 6041(1989).

[10] See Establishing Rules and Policies for the Use of Spectrum for Mobile Satellite Service in the Upper and Lower L-Band, 11 FCC Rcd 11675 (1996).

[11] See Loral/Qualcomm Partnership, L.P., 10 FCC Rcd 2333 (Int'l Bur. 1995); , 10 FCC Rcd 2333 (Int'l Bur. 1995); Motorola Satellite Communications, Inc., 10 FCC Rcd 2268 (Int'l Bur. 1995); Mobile Communications Holdings, Inc., 12 FCC Rcd 9663 (Int'l Bur./OET 1997); Constellation Communications, Inc., 12 FCC Rcd 9651 (Int'l Bur./OET 1997).

[12] The well-publicized Iridium bankruptcy should not be taken as a sign that MSS is not viable. As the Commission is well aware, there are many factors which can result in the failure of a radio station, and there is no reason to identify "MSS" per se as the source of Iridium's problems. The Iridium bankruptcy should not be viewed as the norm for MSS any more than the bankruptcy of a single television

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offering commercial service globally. Globalstar offers fixed, mobile and roaming voice services, and later this year, positioning, asynchronous dial-up fax and data services up to 9,600 bps.[13]

The Commission is also considering nine pending applications for MSS systems at 2 GHz (1990-2025/2165-2200 MHz).[14] Three of these applicants (TMI, ICO, Inmarsat) are pursuing spectrum licenses in other countries and want to obtain an assignment of spectrum to serve the United States market.

Adopting an allocation for MSS at 2.5 GHz is consistent with the existing demand for spectrum and the effective date for these bands. This spectrum has been allocated for MSS internationally for almost a decade. Currently, it is the only frequency band allocated for MSS between 1 and 3 GHz by the ITU that has not been adopted into the U.S. Table. Moreover, it is the only internationally-allocated MSS frequency band in which no systems have either been licensed or applied for in the United States. Implementation of the allocation for MSS at 2.5 GHz would

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station is viewed as the norm for television service. The closer scrutiny of Iridium's rise and fall is due to factors such as there are fewer MSS systems and Iridium had a strong worldwide public relations campaign. Moreover, MSS systems require substantial financial investment, and such costly, high tech products can make high-profile news copy.

[13] See www.globalstar.com.

[14] See The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, 14 FCC Rcd 4843 (1999).

provide further support in the United States for the international allocations for global MSS services.[15]

B. Additional MSS Allocations Are Needed to Deliver Third Generation Wireless Services.

Like terrestrial operators, satellite operators are planning now for the implementation of MSS systems providing 3G services. 3G services will offer subscribers access to high data rate, broadband services such as handheld Internet access and multimedia services such as videoconferencing. Terrestrial wireless systems are already implementing these services, and 3G services will be offered on the next generation of satellite systems.

The need for spectrum will increase as MSS operators develop 3G service offerings.[16] 3G technologies require larger frequency channels to meet the higher data rates than those currently used by MSS systems for voice-only service. For example, providing handheld Internet access in an MSS system will require bandwidths on the order of 10-15 MHz. Multimedia applications for handheld terminals such as videoconferencing, distance learning, and interactive services also require a minimum of 10-15 MHz.

Additional spectrum will also help MSS operators meet increased demand for voice and other existing services. As the Commission is aware, the estimates of the

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[15] See 2 GHz MSS Order, 12 FCC Rcd at 7395.

[16] See Brodsky and Farrar, supra, at 6-7 (citing growth of Internet as source for tremendous demand for additional capacity that satellite systems can fulfill).

subscriber base for terrestrial wireless services were too low by several orders of magnitude. Wireless subscribers will soon begin to demand global, not just nationwide access. "Only satellites can instantly extend the Internet to all rural, remote and developing locations," and so, the demand for MSS will grow as well.[17]

Forcing satellite operators to attempt to provide 3G services and to meet increased demand with the existing spectrum resources is not practical. The limitations on available bandwidth would require more costly system designs to implement 3G services, which may make the systems financially impractical. Moreover, satellite technology can be facilitated by developing parallel to terrestrial technology to take advantage of economies of scale. To keep costs down for manufacture of handsets, satellite operators will design systems incorporating terrestrial wireless technologies. Unless MSS operators have access to sufficient bandwidth to use technology developed for terrestrial services, they will not be able to take advantage of these economies of scale. Allocation of the 2.5 GHz bands for MSS will help fulfill these needs in the near term.

C. The MSS Allocation Should Be Adopted Now to Ensure Timely Delivery of Advanced MSS Services.

The time needed for construction, launch and operation of an MSS system is four to six years. With an effective date of January 1, 2005, for the global allocation, the best time for licensing 2.5 GHz MSS systems in the United States would be in the 2000-2002 time frame. Amending the U.S. Table to adopt an

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[17] Id.

allocation for MSS now would allow the Commission to consider applications within this period and ensure that MSS systems have the opportunity to prepare for launch of service soon after the effective date.[18]

II. THE PUBLIC INTEREST WOULD BE SERVED BY ADOPTION OF AN ALLOCATION FOR MSS AT 2.5 GHZ.

The Commission has long recognized that MSS systems can serve the public interest by offering "an almost limitless number of services, including ubiquitous voice and data mobile services, position location services, search and rescue communications, disaster management communications, environmental monitoring, paging services, facsimile transmission services, cargo tracking, and industrial monitoring and control."[19] Moreover, MSS systems offer seamless nationwide and global services, and, as a result, "will offer Americans in rural areas that are not otherwise linked to the communications infrastructure immediate access to a feature-rich communications network."[20] These benefits are available now from the

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[18] The Commission should adopt Footnote S5.414 (effective date; subject to coordination pursuant to No. S9.11A) for the 2500-2520 MHz band and Footnotes S5.149 (protection of radio-astronomy sites) and S5.419 (effective date; subject to coordination pursuant to No. S9.11A). Footnotes S5.403 and S5.420 extend the service link bands to 2500-2535 MHz and 2655-2690 MHz, respectively, within national boundaries. SIA is not recommending adoption of the extended bands.

[19] Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 5936, 5940 (1994).

[20] Id.

first generation of MSS systems. Implementation of the MSS allocation at 2.5 GHz will facilitate delivery of 3G services.

Moreover, in contrast to terrestrial systems, global MSS systems have footprints that cover the entire United States, and, therefore, can easily provide service to rural and underserved areas. One of the Commission's primary initiatives is to ensure that rural and underserved areas have access to the same telecommunications services available in populated areas of the United States.[21] To that end, the Commission has recognized that MSS systems are important to its goals for nationwide service.[22]

Even now, the first generation of satellite systems is providing basic voice service to rural and underserved areas. The next generation will provide the same 3G services in rural areas available now via terrestrial systems in more populated areas of the country – assuming there is sufficient spectrum to do so. But, unlike terrestrial wireless, there are very limited bands available to provide global satellite services. Therefore, the Commission must facilitate the development of these services in rural and underserved areas by making sufficient spectrum resources available for MSS.

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[21] See Extending Wireless Telecommunications Services to Tribal Lands, FCC 99-205 (released Aug. 18, 1999); Federal-State Joint Board on Universal Service: Promoting Deployment and Subscribership in Unserved and Underserved Areas, Including Tribal and Insular Areas, FCC 99-204 (released Sept. 3, 1999).

[22] See 2 GHz MSS Order, 12 FCC Rcd at 7395; Amendment of Section 2.106 of the Commission's Rules to Allocate the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands for Use by the Mobile-Satellite Service, 9 FCC Rcd 536, 539 (1994).

CONCLUSION

For the reasons set forth above, SIA requests that the Commission initiate a proceeding to adopt an allocation for MSS in the U.S. Table at 2500-2520/2670-2690 MHz.

Respectfully submitted,

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CONCLUSION

For the reasons set forth above, SIA requests that the Commission initiate a proceeding to adopt an allocation for MSS in the U.S. Table at 2500-2520/2670-2690 MHz.

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